

## *Ostericum* and *Angelica* from Manchuria and Korea\* (I)

By

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### *Clavis Generum*

- A. Pericarpium tenue membranaceum cum cellulis 1-serialibus externe convexis compositum sub lente conspicue cellulosum in fructu maturo ab semine saltem in latere sæpe toto solutum, ita semine sæpe nucleato. Calycis dentes prominentes persistentes. Folia subtus pallidiora sed neque glaucescentia neque manifeste venulosa margine nunquam cartilaginea. .... I. *Ostericum* HOFFMANN
- AA. Pericarpium crassum cum cellulis multi-serialibus compositum sub lente non conspicue cellulosum in fructu maturo ad semen arcte contactum, ita semine nunquam nucleato. Calycis dentes obsoleti. Folia subtus ± glaucescentia manifeste venulosa margine sæpe cartilaginea.

II. *Angelica* LINNÆUS

### I. *Ostericum* HOFFMANN

*Ostericum* HOFFMANN, Gen. Umbell. p. 162 (1814); KOCH, Umbell. p. 100 (1824); Syn. p. 30 (1837); A.P. DE CÂNDOLLE, Prodr. IV. p. 167 (1830); LEDEBOUR, Fl. Ross. II. p. 294 (1844-1846); REICHENBACH, Icon. Fl. Germ. XXI. p. 50 (1867); BENTHAM & HOOKER, Gen. Pl. I. p. 916 (1867) sub *Angelica* LINNÆUS; KRYLOV, Fl. Alt. II. p. 520 (1903).

*Ostericum* HOFFMANN ex ENDLICHER, Gen. Pl. p. 778 (1836).

*Gomphopetalum* TURCZANINOW in Bull. Soc. Nat. Mosc. (1841) p. 547; ENDLICHER, l.c. Suppl. II. p. 69 (1842); LEDEBOUR, l.c. p. 294 (1844-1846).

*Angelica* LINNÆUS sect. *Ostericum* MAXIMOWICZ in Mém. Biol. IX. p. 249

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\* Contribution from the Continental Institute of Science, Manchoukuo.

(1873) pro parte, excl. spec. nonn.

*Angelica* (nec LINNÆUS, non HOFFMANN) FRANCHET & SAVATIER, Enum. Pl. Jap. I. p. 187 (1875) pro parte; FRANCHET, Pl. David. I. p. 141 (1884) pro parte; YABE in Journ. Coll. Sci. Imp. Univ. Tokyo XVI. 4. p. 73 (1902) pro parte; NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo XXVI. 1. p. 267 (1909) pro parte; MIYABE & MIYAKE, Fl. Saghal. p. 196 (1915) pro parte; MAKINO & NEMOTO, Fl. Jap. ed. 1. p. 441 (1925) pro parte, ed. 2. p. 828 (1931) pro parte.

*Angelica* LINNÆUS subgen. *Ostericum* MAXIMOWICZ ex DRUDE in ENGLER & PRANTL, Nat. Pfl.-fam. III. 8. p. 220 (1897); DE DALLA TORRE & HARMS, Gen. Siphon. p. 375 (1903).

*Angelica* (non RIVINUS) KOMAROV in Act. Hort. Petrop. XXV. p. 158 (1905) [Fl. Mansh. III. (1907)] pro parte; KOMAROV & KLOB.-ALISOVA, Key Pl. Far East. Reg. USSR II. p. 808 (1932) pro parte.

*Angelica* (non TOURNEFORT) NAKAI, Tyôsen Syokubutu p. 405 (1914) pro parte.

*Ostericum* was published by HOFFMANN in 1814 in his noted work 'Genera plantarum Umbelliferarum eorumque characteres naturales secundum numerum, figuram, situm et proportionem omnium fructificationis partium,' and was followed by some later botanists such as W. D. J. KOCH, A. P. DE CANDOLLE, LEDEBOUR, REICHENBACH both father and son, KRYLOV, etc. But the characters chosen by those botanists to separate it from *Angelica* (in strict sense) are not sufficient to support the genus. In 1867, BENTHAM and HOOKER suggest that *Ostericum* is congeneric with *Gomphopetalum* TURCZANINOW and is only distinguishable from *Angelica* by the presence of prominent calyx-teeth, and it will be better to be included in the latter genus. Later, when MAXIMOWICZ reduced *Ostericum* including *Gomphopetalum* to *Angelica* as a section, he added three heterogeneous elements, namely *Angelica hakonensis* MAXIMOWICZ, *Angelica inæqualis* MAXIMOWICZ, and *Angelica polymorpha* MAXIMOWICZ, all of which should be placed under the true *Angelica*. Thus, the sectional characters were worsely changed to have 'Calyeis dentes obsoleti vel triangulares conspicui.' This mistake comes from the omission of the peculiar structure of the mericarp, and it was followed by DRUDE. In the ripen fruits of *Ostericum*, the mericarp consists of pericarp and seed. The pericarp

is composed of only one stratum of cells each of which is convexed externally, and is free from seed at least in both extremities of mericarp. Thus the seeds are often completely free from thin manifestly cellulose pericarp, so completely as they can be called the nucleate. In true *Angelica*, mericarp is always solid; the pericarp is composed of several strata of cells tightly enveloping the seed. 'Nucleate seed' is one of the leading characteristics in distinguishing *Archangelica* from *Angelica*, *Cenolophium* from *Selinum*, and subgenus *Haloscias* of *Ligusticum* from other subgenera. One more constant character which distinguishes *Ostericum* from *Angelica* is seen in the leaf-segments. The leaf-segments of the species of *Ostericum* are always thin and flaccid, being neither glaucous nor venulose in the under surfaces but being only slightly paler than the upper surfaces, their margins are not cartilagineous. These essential characters which appear always collaterally in *Ostericum* made me separate it from *Angelica* again as a distinct genus.

*Archangelica* differs from *Ostericum* in having thick pericarp composed of many rows of cells and the leaves with similar appearance of *Angelica*.

*Tommasinia*, another related genus, has polygamous flowers and exalate but scarcely elevated filiform dorsal ridges of mericarp.

Seven species of *Ostericum* are indigenous to Manchuria, the Far Eastern Region of USSR, and Japan.

#### *Clavis Specierum*

A. Segmenta foliorum ultima angusta integerrima.

1. *Ostericum Maximowiczii* KITAGAWA

AA. Segmenta foliorum ultima lata nunc serrata nunc crenata nunc incisa.

B. Segmenta foliorum ultima grosse inciso-crenata. Vittæ vallecule 1, commissuræ 2-3-4. . . . . 2. *Ostericum grosseserratum* KITAGAWA

BB. Segmenta foliorum ultima tantum crenata—serrata.

C. Petala viridula. . . . . 3. *Ostericum viridiflorum* KITAGAWA

CC. Petala alba.

D. Folia subtus ad nervos scabrida—pilosula. Vittæ vallecule 1, commissuræ 2. 4. *Ostericum koreanum* KITAGAWA

DD. Folia subtus glaberrima. Vittæ vallecule 1-3, commissuræ 4-6-8. . . . . 5. *Ostericum Miquelianum* KITAGAWA

1) **Ostericum Maximowiczii** (FR. SCHMIDT) KITAGAWA comb. nov.

*Gomphopetalum Maximowiczii* FR. SCHMIDT in MAXIMOWICZ, Prim. Fl. Amur. p. 126 (1859); REGEL, Tent. Fl. Uss. p. 70 (1861); FR. SCHMIDT Reisen Amurl. p. 45, p. 136 (1868); KORSHINSKY in Act. Hort. Petrop. XII. p. 343 (1892).

*Angelica Maximowiczii* BENTHAM ex MAXIMOWICZ in Mél. Biol. IX. p. 253 (1873); KOMAROV in Act. Hort. Petrop. XXV. p. 163 (1905) [Fl. Mansh. III. (1907)]; YABE, Enum. Pl. S. Manch. p. 99 (1912); MIYABE & MIYAKE, Fl. Saghal. p. 199 (1915); MAKINO & NEMOTO Fl. Jap. ed. 1. p. 443 (1925), ed. 2. p. 830 (1931); KOMAROV & KLOB.-ALISOVA, Key Pl. Far East. Reg. USSR II. p. 808 t. 248 (ut *Angelica Maximowiczii*) (1932).

*Angelica Maximowiczii* MAXIMOWICZ ex DRUDE in ENGLER & PRANTL, Nat. Pfl. fam. III. 8. p. 221 (1897).

*Angelica Maximowiczii* BENTHAM f. *australis* KOMAROV, l. c. p. 165 (1905) [Fl. Mansh. III. (1907)].

*Angelica Maximowiczii* BENTHAM & HOOKER f. *australis* KOMAROV ex NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo XXVI. 1. p. 271 (1909).

*Angelica Maximowiczii* BENTHAM & HOOKER ex NAKAI, Tyôsen Syokubutu p. 409 (1914); MORI, Enum. Pl. Cor. p. 268 (1922).

Nom. Jap. *Hobosa-nodake*; *Hobosa-senkyû*

Hab.:

Manshuria:

Prov. CHI-LIN [吉林省] (ex KOMAROV).

Prov. AN-TUNG [安東省] (ex KOMAROV).

Korea:

Prov. KAN-HOKU: Zin-mu-zyô (K. HIRAI n. 25. Aug. 14, 1913); in monte Haku-tô-zan (T. MORI n. 90. Aug. 1913; n. 199. Aug. 1913).

Prov. KAN-NAN: Hu-ten-pô—Hô-tai-dô (T. NAKAI n. 3380. Aug. 5. 1914); prope Kan-tai-ri (T. NAKAI n. 15607. Aug. 15. 1935).

Prov. HEI-HOKU: Kô-kai, Zyû-sei-men (T. NAKAI n. 9191. Jun. 21. 1914); Kô-kai, in monte Ga-toku-rei (T. NAKAI n. 9194. Jul. 4. 1914); flum. Jalu (V. L. KOMAROV Aug. 27. 1897).

Siberia orient.:

Prov. AMUR : Fluvium Sutar (V. L. KOMAROV Aug. 9. 1895).

SACHALIN BOR : Adatuim (Y. OKADA Aug. 23. 1923); Palkhata (Y. OKADA Aug. 26. 1923).

Distr. Sibiria orient., Manshuria, Korea & Japonia (Sachalin).

The leaf-segments of this species are considerably variable in their length and width. Specimen from Amur collected by Prof. KOMAROV has narrowly dissected and strongly compounded leaves. Korean plant (f. *australis* KOMAROV [sub *Angeli-a*]) has generally smaller and shorter leaf-segments as Prof. KOMAROV has already stated in his 'Flora Manshuriae.' The specimen n. 3380 collected by Prof. NAKAI is another distinct form having robust stem and more simply compounded leaves which have rather long and broad segments; this form is nearest to Saghalien specimens. MORI's n. 199 shows some tendency to approach to the Amur-type. The presumable yet innumerable intermediate forms linking altogether make the nomination thereupon unnecessary.

2) ***Ostericum grosseserratum*** (MAXIMOWICZ) KITAGAWA comb. nov.

*Gomphopetalum* n. sp. MAXIMOWICZ, Prim. Fl. Amur. p. 472 (1859).

*Angelica grosseserrata* MAXIMOWICZ in Mém. Biol. IX. p. 253 (1873); FORBES & HEMSLEY in Journ. Linn. Soc. XXIII. p. 334 (1888).

*Angelica mongolica* FRANCHET, Pl. David. I. p. 141 (1884); FORBES & HEMSLEY, l. c. p. 334 (1888)—*syn. nov.*

*Angelica Uchiyamæ* YABE in Tokyo Bot. Mag. XVII. p. 107 (1903); NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo XXVI. 1. p. 270 t. 3 (ut *Angelica Uchiyamæ*) (1909); Tyôsen Syokubutu p. 410 f. 518 (ut *Angelica Uchiyamana*) (1914); MORI, Enum. Pl. Cor. p. 268 (ut *Angelica Uchiyamana*) (1922)—*syn. nov.*

? *Peucedanum Taquetii* WOLFF in FEDDE, Repert. XXI. p. 245 (1925).

Nom. Jap. *Nioi-udo*

Hab.

Manshuria :

Prov. FÊNG-T'ÏEN [奉天省] : In collibus circa Ling-shuei-szŭ [凌水寺] (M. KITAGAWA Aug. 13. 1931); in collibus ad ostium fluv. Ling-shuei-hê [凌水河] (M. KITAGAWA Aug. 15. 1913); in monte Lao-t'ieh-shan [老鐵山]

prope Lü-shun [旅順] (M. KITAGAWA Aug. 16. 1931).

Prov. AN-TUNG [安東省]: Chi-kuan-shan [鷄冠山] (K. YAMATUTA Mai. 18. 1930); in collibus sylvaticis prope Chi-kuan-shan [鷄冠山] (M. KITAGAWA Aug. 4. 1931); in monte Fêng-huang-shan [鳳凰山] (K. YAMATUTA Aug. 5. 1928); ibidem (M. KITAGAWA Aug. 5. 1931)

Prov. JÊ-HÊ [熱河省]: Ch'ai-hê-k'ou [柴河口]—Hsing-lung-t'ang [興隆堂] (T. NAKAI, M. HONDA & M. KITAGAWA Aug. 26. 1933); prope Chang-shan-yü [長山峪] (T. NAKAI, M. HONDA & M. KITAGAWA Sept. 13. 1933).

Korea :

Prov. KAN-HOKU: Syô-zan-dô—Kô-kô-ki (T. NAKAI n. 3295. Aug. 27. 1914).

Prov. KAN-NAN: San-sui—Sya-sen-ri (T. NAKAI n. 3575. Jul. 25. 1914).

Prov. HEI-NAN: Bo-tan-hô (T. UCHIYAMA Sept. 12. 1902).

Prov. Kô-KAI: Zui-kô (T. NAKAI n. 2848 Sept. 10. 1915).

Prov. Kô-GEN: In monte Kon-gô-zan (T. UCHIYAMA Aug. 20. 1902); ibidem (T. NAKAI n. 5702. Aug. 4. 1916; n. 5705. Aug. 11. 1916).

Prov. ZEN-NAN: In insulâ Nisizima (T. NAKAI n. 11912. Mai. 24. 1928); Quelpært in sylvis Hallaisan 1600 m. (TAQUET n. 2913. Jul. 1909); in insulâ Sai-syû-tô sive Quelpært (T. NAKAI Jun. 6. 1913)

Distr. Manshuria austr., Korea & China bor.

This is a remarkable species widely distributed over the above mentioned localities, and is characterized by the slender stem and the coarsely incised leaf-segments. The leaf-segments are much variable in the shape and the mode of dentation. MAXIMOWICZ first described this plant as 'fructu suborbiculato . . . . ., valleculis 1-, commissura 4-vittatis.' When FRANCHET published his *Angelica mongolica*, he compared it with MAXIMOWICZ's species as 'Prope *Angelica grosseserrata* collocanda; differt præsertim foliorum dentibus magis numerosis, usque 11-15; involueri & involucelli foliolis usque ad 8, fructus formâ, etc.', and his description reads 'fructus ovato-orbicularis . . . . .; vittæ commissurales tres; . . . . .' Dr. YABE distinguished his *Angelica Uchiyamæ* from *Angelica mongolica* FRANCHET in the point: 'fructibus nec ovato-orbicularibus commissuris utrinque bivittatis.' But the form of fruit is different by the stage of its maturing. The type specimen of *Angelica Uchiyamæ* YABE bears fruits of younger stage, and their wings have not yet

fully developed. The number of vittæ found in the commissur of mericarp changes from 2 to 4, even in the same umbel ! Under the circumstances as such, I presume that these three names are the names given to the different individuals of one and same species.

3) ***Ostericum viridiflorum*** (TURCZANINOW) KITAGAWA comb. nov.

*Gomphopetalum viridiflorum* TURCZANINOW in Bull. Soc. Nat. Mosc. XI. (1838) l. n. 534 nom. nud., (1841) p. 539; LEDEBOUR, Fl. Ross. II. p. 294 (1844-1846); REGEL, Tent. Fl. Uss. p. 70 (1861).

*Angelica viridiflora* BENTHAM ex MAXIMOWICZ in Mém. Biol. IX. p. 253 (1873); KOMAROV in Act. Hort. Petrop. XXV. p. 166 (1905) [Fl. Mansh. III. (1907)]; KOMAROV & KLOB.-ALISOVA, Key Pl. Far East. Reg. USSR II. p. 819 t. 250 (1932).

*Angelica viridiflora* MAXIMOWICZ ex DRUDE in ENGLER & PRANTL, Nat. Pfl.-fam. III. 8. p. 221 (1897).

Nom. Jap. *Midori-nodake* (M. MIURA)

Hab. :

Manchuria :

Prov. FÊNG-T'ÏEN [奉天省] : In sylvis circa Pei-ling [北陵] (K. YAMATUTA Sept. 15. 1926. Herb. K. YAMATUTA).

Distr. Manchuria, Amur, Ussuri & Dahuria.

This is a rare species, sparsely distributed in eastern Siberia and Manchuria. I have never collected this myself.

4) ***Ostericum koreanum*** (MAXIMOWICZ) KITAGAWA comb. nov.

*Angelica koreana* MAXIMOWICZ in Mém. Biol. XII. p. 471 (1886); KOMAROV in Act. Hort. Petrop. XXV. p. 161 (1905) [Fl. Mansh. III. (1907)]; NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo XXVI. 1. p. 270 (1909); Tyôsen Syokubutu p. 408 f. 515 (1914); YABE, Enum. Pl. S. Manch. p. 99 (1912); MORI, Enum. Pl. Cor. p. 267 (1922).

Nom. Jap. *Tyôsen-nodake*; *Tyôsen-oni-udo*

Hab. :

Manchuria :

Prov. PIN-CHIANG [濱江省]: Via inter Ninguta et Omôso. Vallis Paluodi  
(V. L. KOMAROV Jul. 22. 1896).

Korea:

Prov. KAN-HOKU: Nan-sen-dô (T. NAKAI n. 3289. Aug. 27. 1914).

Prov. KAN-NAN: Kei-zan-tin—Hu-ten-po (T. NAKAI n. 3929. Aug. 4. 1914);  
Sya-sen-ri—San-sui (T. NAKAI n. 3586. Jul. 25. 1914); San-yô—Kô-kô (T.  
NAKAI n. 3594. Jul. 22. 1914).

Prov. HEI-HOKU: Kô-kai (T. NAKAI n. 9208. Jul. 22. 1914).

Distr. Manshuria, Ussuri austr. & Korea bor.

The present species is much nearer to *Ostericum Miquelianum* KITAGAWA than to *Angelica polymorpha* MAXIMOWICZ, though MAXIMOWICZ and KOMAROV had compared it with the latter. The leaf-segments are usually a little narrower, more densely congested than those of *Ostericum Miquelianum*, and often hairy on the lower surface. I have examined no fruiting specimen, but according to the description originally given by MAXIMOWICZ, the mericarp of this species has one vitta in each vallecule and two in commissure.

5) ***Ostericum Miquelianum* (MAXIMOWICZ) KITAGAWA comb. nov.<sup>1)</sup>**

*Angelica Miqueliana* MAXIMOWICZ in Mém. Biol. IX. p. 255 (1873); FRANCHET & SAVATIER, Enum. Pl. Jap. II. p. 375. (1876); FRANCHET, Pl. David. I. p. 142 (1884); FORBES & HEMSLEY in Journ. Linn. Soc. XXIII. p. 334 (1888); YABE in Journ. Coll. Sci. Imp. Univ. Tokyo XVI. 4. p. 87 (1902); in Tokyo Bot. Mag. XVII. p. 107 (1903); NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo

<sup>1)</sup> *Gomphopetalum albiflorum* TURCZANINOW of Eastern Siberia and *Angelica Florenti* FRANCHET & SAVATIER of Japan belong to this genus and their names should be changed to:—

***Ostericum albiflorum* (TURCZANINOW) KITAGAWA comb. nov.**

*Gomphopetalum albiflorum* TURCZANINOW in Bull. Soc. Nat. Mosc. (1841) p. 539; LEDEBOUR, Fl. Ross. II. p. 294 (1844-1846); REGEL, Tent. Fl. Uss. p. 70 (1861).

*Angelica albiflora* BENTHAM ex MAXIMOWICZ in Mém. Biol. IX. p. 253 (1873); KOMAROV in Act. Hort. Petrop. XXV. p. 165 (1905) [Fl. Mansh. III. (1907)]; KOMAROV & KLOB.-ALISOVA, Key Pl. Far East. Reg. USSR II. p. 808 (1932).

*Angelica albiflora* MAXIMOWICZ ex DRUDE in ENGLER & PRANTL, Nat. Pfl.-fam. III. 8. p. 221 (1897).

Nom. Jap. *Siberiya-yamazeri* (nov.)

Distr. Sibiria altaica & Ussuri.



XXVI. p. 270 (1909) : Tyôsen Syokubutu p. 409 f. 517 (1914) ; MATSUMURA, Ind. Pl. Jap. II. 2. p. 425 (1912) ; MORI, Enum. Pl. Cor. p. 268 (1922) ; MAKINO & NEMOTO, Fl. Jap. ed. 1. p. 443 (1925), ed. 2. p. 830 (1931).

*Peucedanum Miquelianum* WOLFF in FEDDE, Repert. XXI. p. 248 (in nota) (1925).

Nom. Jap. *Yama-zero*

Hab. :

Manchuria :

Prov. Jê-Hê [熱河省] : Hsing-lung-t'ang [興隆堂]—Pei-ying-fang [北營房] (T. NAKAI, M. HONDA & M. KITAGAWA Aug. 27. 1933) ; Hsing-lung [興隆]—Ch'iang-tzŭ-lu [牆子路] (T. NAKAI, M. HONDA, M. KITAGAWA Sept. 6. 1933) ; prope Chang-shan-yŭ [長山峪] (T. NAKAI, M. HONDA & M. KITAGAWA Sept. 13. 1933).

Korea :

Prov. KAN-NAN : Prope Kan-tai-ri (T. NAKAI n. 15608. Aug. 15. 1935).

Prov. Kô-KAI : Zui-kô (T. NAKAI n. 2881. Sept. 27. 1915) ; An-zyô—Zui-kô (T. UCHIYAMA Sept. 8. 1902).

Prov. Kô-KAI—KEI-KI : Kin-sen—Kai-zyô (T. UCHIYAMA Sept. 6. 1902).

Prov. KEI-NAN : Hu-zan (T. UCHIYAMA Nov. 15. 1901).

Japonia :

Honsyû :—

Prov. IWAKI : Distr. Isikawa (T. UMEMURA n. 265. Sept. 30. 1911).

Prov. MUSASI : In monte Kariyese-yama (K. HISAUTI Sept. 24. 1935) ; Ko-

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***Ostericum Florenti*** (FRANCHET & SAVATIER) KITAGAWA comb. nov.

*Angelica Florenti* FRANCHET & SAVATIER in litt. ex MAXIMOWICZ in Mém. Biol. IX. p. 251 (1873) ; FRANCHET & SAVATIER, Enum. Pl. Jap. I. p. 188 (1875), II. p. 376 (1876) ; YABE in Journ. Coll. Sci. Imp. Univ. Tokyo XVI. 4. p. 86 (1902) ; MATSUMURA, Ind. Pl. Jap. II. 2. p. 424 (1912) ; MAKINO & NEMOTO, Fl. Jap. ed. 1. p. 442 (1925), ed. 2. p. 829 (1931).

Nom. Jap. *Miyama-ninjin*

Hab. : Japonia :

Honsyû :—

Prov. SAGAMI : Hokone (S. ÔKUBO Oct. 11. 1890) ; ibidem (T. NAKAI Nov. 1926).

Prov. SURUGA : In monte Fuji-san (J. MATSUMURA Sept. 7. 1892) ; ibidem (B. HAYATA Jul. 14. 1924 ; Aug. 23-24. 1924).

Distr. Japonia (Honsyû).

botoge-tôge (K. HISAUTI Nov. 6. 1932).

Prov. SIMOTUKE : Nikkô (J. MATSUMURA Oct. 1. 1895); ibidem (H. ITÔ anno 1931).

Prov. SINANO : sine loco speciali (D. TAKASIMA).

Prov. SAGAMI : Hakone (S. ÔKUBO Oct. 7. 1890).

Prov. SURUGA : In oppido Setonoya-mura (D. SIMIDU n. 330. Oct. 10. 1930).

Prov. ÔMI : In monte Ibuki-yama (Y. YABE Sept. 7. 1901).

Prov. BITTYÛ : In oppido Hukutani-mura (D. NIKAI n. 1158. Sept. 24. 1

Distr. China bor., Manchuria austr., Korea & Japonia.

This species is well marked by its broad leaf-segments and mericarp provided with many vittæ. It is quite uncomprehensible why WOLFF transferred this to the genus *Peucedanum*. Both the Manchurian and Korean specimens well agree with the Japanese specimens. I have never met with this species in other provinces of Manchuria except Jehol.

## II. *Angelica* LINNÆUS

*Angelica* LINNÆUS, Sp. Pl. ed. 1. p. 250 (1753) : Gen. Pl. ed. 5. p. 119 n. 309 (1754) ; HOFFMANN, Gen. Umbell. p. 158 (1814) pro parte ; LEDEBOUR, Fl. Ross. II. p. 295 (1844-1846) ; BENTHAM & HOOKER, Gen. Pl. I. p. 916 (1867) pro parte ; FRANCHET & SAVATIER, Enum. Pl. Jap. I. p. 187 (1875) pro parte ; FRANCHET, Pl. David. I. p. 141 (1884) pro parte ; DRUDE in ENGLER & PRANTL, Nat. Pfl.-fam. III. 8. p. 219 (1897) pro parte ; KRYLOV, Fl. Alt. II. p. 521 (1903) ; BOISSIEU in Bull. Herb. Boiss. sér. 2. X. p. 957 (1903) ; NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo XXV. 1. p. 267 (1909) pro parte ; MIYABE & MIYAKE, Fl. Saghal. p. 196 (1915) pro parte ; MAKINO & NEMOTO Fl. Jap. ed. 1. p. 441 (1925) pro parte, ed. 2. p. 928 (1931) pro parte.

*Angelica* RIVINUS, Pentapetal. p. 5 (1699) ex LINNÆUS, Gen. Pl. ed. 1. p. 76 n. 218 (1737) ; KOMAROV in Act. Hort. Petrop. XXV. p. 158 (1905) [Fl. Mansh. III. (1907)] pro parte : Fl. Penins. Kamtsch. II. p. 345 (1929) ; KOMAROV & KLOB.-ALISOVA, Key Pl. Far East. Reg. USSR II. p. 808 (1932) pro parte.

*Angelica* TOURNEFORT, Inst. Rei Herb. p. 313 t. 67 (1700) ; NAKAI, Tyôsen Syokubutu p. 405 (1914) pro parte.

*Angelica* HOFFMANN ex KOCH, Umbell. p. 99 (1824) pro parte; DE CANDOLLE, Prodr. IV. p. 167 (1902) pro parte; REICHENBACH, Icon. Fl. Germ. XXI. p. 48 (1867) pro parte; YABE in Journ. Coll. Sci. Imp. Univ. Tokyo XVI. 4. p. 73 (1902) pro parte.

*Peucedanum* (non LINNÆUS) BOISSIEU, l. c. p. 956 (1903) pro parte.

The generic characters of *Angelica* described by LINNÆUS in 1754 in 'Genera Plantarum ed. 5' are as follows:—

"CAL. *Umbella universalis* multiplex, subrotunda: *Partiales* florens exacte globosa.

*Involucrum universale* tri-vel pentaphyllum, parvum: *Partiale* parvum, octophyllum.

*Perianthium proprium* quinquedentatum, vix notabile.

COR. *universalis* uniformis:

*Partialis* Petalis quinque, lanceolatis, leviter incurvis, caducis.

STAM. *Filamenta* quinque, simplicia, corolla longiora. *Antheræ* simplices.

PIST. *Germen* infra receptaculum. Styli duo, reflexi. *Stigmata* obtusa.

PER. nullum. *Fructus* subrotundus, angulatus, bipartibilis.

SÉM. duo, ovata, hinc plani, margine cincta; inde convexa, tribus lineis secundum longitudinem elevatis notata."

And, in his 'Species Plantarum ed. 1.', four species are enumerated, viz. *Angelica Archangelica* LINNÆUS, *Angelica sylvestris* LINNÆUS, *Angelica atropurpurea* LINNÆUS and *Angelica lucida* LINNÆUS, out of which the second species is the proposed "standard species" of the genus *Angelica* by the international Botanical Congress of Cambridge, 1930.

In ENGLER & PRANTL'S 'Die natürlichen Pflanzenfamilien III. 8' published in 1897, DRUDE united *Angelica* LINNÆUS, *Archangelica* HOFFMANN, *Ostericum* HOFFMANN (= *Gomphopetalum* TURCZANINOW), *Gingidium* FORSTER, *Callisace* FISCHER, *Tommasinia* BERTOLONI, *Czernaevia* TURCZANINOW and *Angelophyllum* RUPRECHT into one genus *Angelica* and he divided *Angelica* into five subgenera. They are:

Subgen. *Eustylis* DRUDE (= *Gingidium* FORSTER = *Anisotome* HOOKER FIL. sect. *Eustylis* HOOKER FIL.)

Subgen. *Tommasinia* DRUDE (= *Tommasinia* BERTOLONI)

Subgen. *Angelicastrum* DRUDE (including *Callisace* FISCHER & *Angelophyllum* RUPRECHT)

Subgen. *Archangelica* MAXIMOWICZ (= *Archangelica* HOFFMANN)

Subgen. *Ostericum* MAXIMOWICZ (= *Ostericum* HOFFMANN = *Gomphopetalum* TURCZANINOW)

But each of these subgenera has sufficient characteristics as an independent genus, and they must be elevated again to the former generic rank, namely, subgen. *Eustylis* DRUDE to *Gingidium* FORSTER, subgen. *Tommasinia* DRUDE to *Tommasinia* BERTOLONI, subgen. *Angelicastrum* DRUDE to *Angelica* LINNÆUS, subgen. *Archangelica* MAXIMOWICZ to *Archangelica* HOFFMANN and lastly subgen. *Ostericum* MAXIMOWICZ to *Ostericum* HOFFMANN.

In the same place, DRUDE recognized four sections in subgen. *Angelicastrum* DRUDE, viz. :—

§ *Callisace* RUPRECHT

§ *Angelophyllum* BENTHAM & HOOKER

§ *Anisopleura* MAXIMOWICZ

§ *Euangelica* DE CANDOLLE

In doing this DRUDE seems not to have made the comparative studies on these sections, because they have so many common characteristics as one can not point out reasonably their independency. In my opinion, these sections belong altogether to a natural group of the section *Euangelica*.

Though *Czernaevia levigata* TURCZANINOW is a peculiar species, its peculiarity is not sufficient to form an independent genus; it represents better a section of *Angelica*.

*Peucedanum cartilaginomarginatum* MAKINO was at first transferred to *Angelica* by Prof. NAKAI and again recently moved to *Pimpinella* by Dr. WOLFF. This is also a distinct species. It is remotely related to *Peucedanum* and far more to *Pimpinella*. The most appropriate way is to treat it as a species of *Angelica* typifying another monotypic section.

*Porphyroscias* was established by MIQUEL in 1867 based upon *Porphyroscias decursiva*; the natural position of which is disputable. It has been combined to *Angelica* by FRANCHET & SAVATIER, and later on into *Peucedanum* by MAXIMOWICZ. Very recently WOLFF adopted this generic name and pub-

lished new species. *Porphyroscias decursiva* bears fruits somewhat resembling to those of *Peucedanum*, but other essential characters and its general aspect make us not to put it into *Peucedanum*, nor into special genus. It is evidently a member of *Angelica*. So far as the structure of fruits concerned, *Angelica gigas* NAKAI of Korea is typically a species of *Angelica*. Its general aspect and habit are quite similar to *Porphyroscias decursiva*.

*Angelica* of Manchuria and Korea comprises three sections as mentioned above and the number of species amounts to about ten.

*Clavis Sectionum*

- A. Petala extrema florum marginis umbellæ multo majora ut in genere *Heracleo*. Mericarpia jugis lateralibus in alam tenuem quam jugæ dorsales anguste alatae multo latiore expansis ita paulum complanata.

Sect. 1. *Czernaevia* KITAGAWA

- AA. Petala omnium florum fere homomorpha. Mericarpia jugis lateralibus in alam tenuem quam jugæ dorsales anguste alatae paulum latiore expansis ita vix complanata fere semi-teretia.

Sect. 2. *Decursiva* KITAGAWA

- AAA. Petala omnium florum fere homomorpha. Mericarpia jugis lateralibus in alam crassam—tenuem quam jugæ dorsales nerviformes—paulum alatae multo latiore expansis ita valde complanata.

Sect. 3. *Euangelica* DE CANDOLLE

Sect. 1. **Czernaevia** (TURCZANINOW) KITAGAWA comb. nov.

*Czerniajevia* TURCZANINOW in Bull. Soc. Nat. Mosc. XI. (1838) p. 93 nom. nud.

*Czernaevia* TURCZANINOW in Bull. Soc. Nat. Mosc. XVII. p. 739 (1844); LEDEBOUR, Fl. Ross. II. p. 293 (1844–1846); BENTHAM & HOOKER, Gen. Pl. I. p. 917 (1867) sub *Archangelica* HOFFMANN.

*Angelica* LINNÆUS subgen. IV. *Archangelica* REGEL ex DE DALLA TORRE & HARMS, Gen. Siphon. p. 37 (1903) pro parte.

1) **Angelica Czernaevia** (FISCHER & MEYER) KITAGAWA comb. nov.

*Conioselinum Czernaevia* FISCHER & MEYER, Ind. Sem. Hort. Petrop. II p. 33 (1825).

*Czernaevia laevigata* TURCZANINOW in Bull. Soc. Nat. Mosc. XVII. p. 739 (1844); LEDEBOUR, Fl. Ross. II. p. 293 (1844–1846); FR. SCHMIDT in MAXIMOWICZ, Prim. Fl. Amur. p. 127 (1858); Reisen Amurl. p. 46 (1868); REGEL, Tent. Fl. Uss. p. 70 (1861); KORSHINSKY in Act. Hort. Petrop. XII. p. 344 (1892).

*Angelica laevigata* (non FISCHER 1812<sup>2)</sup>) FRANCHET, Pl. David. I. 143 (1884); FORBES & HEMSLEY in Journ. Linn. Soc. XXIII. p. 334 (1888); KOMAROV in Act. Hort. Petrop. XXV. p. 162 (1905) [Fl. Mansh. III. (1907)]; YABE, Enum. Pl. S. Manch. p. 99 (1912); MORI, Enum. Pl. Cor. p. 267 (1922).

*Archangelica laevigata* BENTHAM & HOOKER ex FRANCHET, l. c. p. 143 (1884) (pro syn.).

*Angelica flaccida* KOMAROV in Act. Hort. Petrop. XVIII. p. 430 (1901), XXII. t. 17 (1903) [Fl. Mansh. II (1904)], XXV. p. 166 (1905) [Fl. Mansh. III. (1907)]; BOISSIEU in Bull. Herb. Boiss. sér. 2. VIII. p. 957 (1903); NAKAI in Journ. Coll. Sei. Imp. Univ. Tokyo XXVI. 1. p. 271 (1909); Tyôsen Syokubutu p. 407 f. 513 (1914); YABE, l. c. p. 99 (1912); MORI, l. c. p. 267 (1922)—*syn. nov.*

Nom. Jap. *Tati-udo*; *Kobano-nodake*

Hab.:

Manshuria:

Prov. HSING-AN OCCID. [興安西省]: Prope Irekte [伊勒克特] (M. KITAGAWA Jul. 28. 1930; Jul. 29. 1930).

Prov. CHI-LIN [吉林省]: Prope Chi-lin [吉林] (N. TOMARI n. 14. Aug. 10. 1935).

Prov. FÊNG-T'ÏEN [奉天省]: In herbidis prope T'ieh-ling [鐵嶺] (M. KITAGAWA Aug. 15. 1926): circa Pei-ling [北陵] prope Fêng-t'ien [奉天] (K. YAMATUTA n. 200. Aug. 14. 1928).

Prov. JÊ-HÊ [熱河省]: Hsing-lung-t'ang [興隆堂]—Pei-ying-fang [北營房] (T. NAKAI, M. HONDA & M. KITAGAWA Aug. 27. 1933); in monte Wu-ling-shan [霧靈山] (T. NAKAI, M. HONDA & M. KITAGAWA Sept. 2. 1933); prope Chang-shan-yü [長山峪] (T. NAKAI, M. HONDA & M. KITAGAWA Sept. 13. 1933).

Korea:

<sup>2)</sup> *Angelica laevigata* FISCHER, Cat. Hort. Gorenk. (1812) p. 45.

Prov. KAN-HOKU : Nô-di-dô—San-ka-men (T. NAKAI n. 3184. Aug. 14. 1914); Mohô—Nô-di-dô (T. NAKAI Aug. 13. 1914).

Prov. KAN-NAN : Prope Kan-tai-ri (T. NAKAI n. 15604. Aug. 15. 1935); Flum. Jalu (V. L. KOMAROV Jul. 24. 1897).

Prov. KEI-KI : Bo-tan-hô (T. UCHIYAMA Sept. 12. 1902).

Distr. Dahuria, Amur, Ussuri, Manshuria, Korea & China bor.

Reading the original description of *Angelica flaccida* KOMAROV, I searched in vain the difference between *Angelica flaccida* KOMAROV and *Angelica levigata* FRANCHET (not of FISCHER), except the presence of acute calyx-teeth in the former species. Notwithstanding the description of KOMAROV the flowers illustrated in the suffixed plate of 'Flora Manshuriae II' has no conspicuous calyx-teeth. Rigidity of leaves and petiols and shape of leaf-segments are the most variable characters in *Angelica levigata* FRANCHET. Its constant characters are the heteromorphous petals resembling those of *Heracleum*, thin wings of mericarps, not inflated petiols and the numerous vittae in the mericarps. The involueller bracts are very narrow, subulate, nearly setaceous. The involueral bracts are usually wanted.

This species is often found in thickets and meadows along brooks.

Sect. 2. **Decursivæ** (WOLFF) KITAGAWA comb. nov.

*Pimpinella* LINNÆUS sect. III. *Tragoselinum* DE CANDOLLE subsect. 5. *Decursivæ* WOLFF in ENGLER, Pfl.-reich IV. 228 (Heft 43) p. 287 (1927).

2) ***Angelica cartilaginomarginata*** NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo XXVI. 1. p. 269 (1909).

*Peucedanum cartilaginoseriatum* MAKINO, mss. ex NAKAGAWA in Tokyo Bot. Mag. XIII. p. 54 (1899) nom. nud.

*Peucedanum cartilaginomarginatum* MAKINO ex YABE in Journ. Coll. Sci. Imp. Univ. Tokyo XVI. 4. p. 100 (1902).

*Pimpinella cartilaginomarginata* WOLFF in ENGLER, Pfl.-reich IV. 228. (Heft 43) p. 287 (ut *Pimpinella cartilagineo-marginata*) (1927).

var. **Makinoi** (NAKAI) KITAGAWA comb. nov.

*Peucedanum cartilaginomarginatum* MAKINO ex YABE, l. c. p. 100 (1902) pro major. partibus; MATSUMURA, Ind. Pl. Jap. II. 2. p. 439 (1912) pro parte;

MAKINO & NEMOTO, Fl. Jap. ed. 1. p. 460 (1925), ed. 2. p. 846 (1931).

*Peucedanum Makinoi* NAKAI in MATSUMURA, Icon. Pl. Koisik. I. p. 131 t. 66 (1913).

*Pimpinella cartilaginomarginata* WOLFF, l.c. p. 287 (1927) pro parte.

Nom. Jap. *Hime-nodake*

Distr. Japonia.

var. **Matsumuræ** (BOISSIEU) KITAGAWA comb. nov.

*Peucedanum cartilaginomarginatum* MAKINO ex YABE, l.c. p. 100 (1902) pro minor. partibus : in Tokyo Bot. Mag. XVII. p. 108 (1903).

*Sium* ? *Matsumuræ* BOISSIEU in Bull. Herb. Boiss. sér. 2. III. p. 954 (1903).

*Angelica crucifolia* KOMAROV in Act. Hort. Petrop. XXV. p. 170 (1905); YABE, Enum. Pl. S. Manch. p. 99 (1912); NAKAI in MATSUMURA, Icon. Pl. Koisik. II. p. 5 t. 87 (1914); MORI, Enum. Pl. Cor. p. 266 (1922) pro parte.

*Peucedanum crucifolium* BOISSIEU, l.c. VIII. p. 643 (1908).

*Angelica cartilaginomarginata* NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo, l.c. p. 269 (1909) pro parte.

*Angelica confusa* NAKAI in MATSUMURA, Icon. Pl. Koisik. I. p. 133 t. 67 (1913); MAKINO & NEMOTO, l.c. ed. 1. p. 442 (1925), ed. 2. p. 829 (1931).

*Angelica calloso-serrata* NAKAI, Tyôsen Syokubutu p. 406 (1914) nom. seminud.

*Pimpinella cartilaginomarginata* WOLFF, l. c. p. 287 (1927) pro parte.

? *Pimpinella decursiva* WOLFF, l. c. p. 287 (1927).

Nom. Jap. *Kôrai-hime-nodake*; *Tyosen-hime-nodake*

Hab. :

Manshuria :

Prov. FÊNG-T'ÏEN [奉天省] : In sylvis circa Ling-shuei-szû [凌永寺] (M. KITAGAWA Aug. 15. 1930).

Korea :

Prov. KAN-NAN : Fluvium Jalu super. Vallis Karami (V. L. KOMAROV Jul. 22. 1897).

Prov. HEI-HOKU : Kô-kai (R. G. MILLS n. 60. Jul. 25. 1911; n. 84. Jul. 25. 1911; n. 471. Aug. 2. 1910).

Prov. Kô-KAI : Zui-kô (T. NAKAI n. 2861. Sept. 10. 1915; n. 2862. Sept.



10. 1915).

Prov. KÔ-GEN : In monte Kon-gô-zan (T. NAKAI n. 5699. Aug. 7. 1916);  
Sô-moku-dô (T. UCHIYAMA Aug. 10. 1902).

Prov. KEI-KI : Tyô-tan (T. NAKAI n. 2904. Sept. 9. 1915); Suigen (T. NAKAI n. 3083. Sept. 4. 1915).

Distr. Manshuria, Korea & Japonia (etiam China bor. ?).

f. **latipinna** KITAGAWA f. nov.

*Peucedanum decursivum* MAXIMOWICZ f. *albiflorum* YABE in Tokyo Bot. Mag. XVII. p. 108 (1903) pro parte.

*Angelica cartilaginomarginata* NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo l. c. p. 269 (1909) pro parte.

*Angelica crucifolia* (non KOMAROV) MORI, Enum. Pl. Cor. p. 266 (1922) pro parte.

Segmenta foliorum ultima latiora late ovata—anguste elliptica apice obtusa—obtusissima usque ad 3 cm. lata.

Nom. Jap. *Hiroha-hime-nodake* (nov.)

Hab. :

Korea :

Prov. KEI-KI : In monte Hok-kan-zan (T. UCHIYAMA Oct. 14. 1900—Typus).

Distr. Korea.

var. **distans** (NAKAI) KITAGAWA comb. nov.

*Angelica cartilaginomarginata* NAKAI in Journ. Coll. Sci. Imp. Univ. Tokyo l. c. p. 269 (1909) pro parte.

*Angelica distans* NAKAI, Tyôsen Syokubutu p. 406 (1914): in Tokyo Bot. Mag. XXVIII. p. 313 (1914); MORI, Enum. Pl. Cor. p. 267 (1922).

*Pimpinella cartilaginomarginata* WOLFF, l. c. p. 287 (1927) pro parte.

Nom. Jap. *Ô-siraha-nodake*

Hab. :

Korea :

Prov. KEI-KI : Syô-tei (T. UCHIYAMA Sept. 28. 1902).

Distr. Korea.

Though the least external resemblance of the fruits of this species to *Pim-*

*pinella* puzzled WOLFF, the inner structure materializes no affinity of these two genera.

In describing this species Dr. MAKINO have had mixed two different types; one is a dwarf form having small leaves with rather coarse irregular serrations, and the other is more normally grown and has regular serrations. All the specimens, especially the former, bear immatured fruits with hardly developed wings which caused T. MAKINO to think it a species of *Peucedanum*. Prof. NAKAI has also the same opinion with Dr. MAKINO in taking this under *Peucedanum* and he says that the real *Angelica crucifolia* has more simple leaves and better developed wings in fruits.

Var. *Matsumurae* KITAGAWA is the most normal form and in Manchuria this form is found alone. Var. *distans* KITAGAWA is a peculiar one having large leaves the lowest pinnæ of which are situated closely to the base and much apart from the upper pairs, and Prof. NAKAI insists of its being a good species and he told me that he could always easily discriminate it in the field.

The varieties and forms are distinguishable from each other in the following way.

A. Pinnæ foliorum infimæ a pinnis superioribus non distantes.

B. Folia minora, laminâ usque ad 7.5 cm. longâ, segmentis ultimis usque 8 mm. latis. .... var. *Makinoi* KITAGAWA

BB. Folia majora, laminâ usque ad 21 cm. longâ, segmentis ultimis usque 3 cm. latis.

C. Segmenta foliorum inferiorum angusta oblonga—linearia apice vulgo acuta raro obtusa usque 2.5 cm. lata.

var. *Matsumurae* KITAGAWA

CC. Segmenta foliorum inferiorum lata ovata—anguste elliptica apice obtusa—obtusissima usque 3 cm. lata.

var. *Matsumurae* f. *latipinna* KITAGAWA

AA. Pinnæ foliorum infimæ a pinnis superioribus longe distantes.

var. *distans* KITAGAWA